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APR 07



TECH CENTER 1000/2000

1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/619,032A

DATE: 04/02/2003

TIME: 12:07:44

Input Set : A:\09010-004005.txt

Output Set: N:\CRF4\04022003\I619032A.raw

4 <110> APPLICANT: Murphy, Dennis  
 5 Reid, John  
 7 <120> TITLE OF INVENTION: ALPHA GALACTOSIDASES AND METHODS FOR  
 8 MAKING AND USING THEM (Amended)  
 10 <130> FILE REFERENCE: 09010-004005  
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/619,032A  
 C--> 13 <141> CURRENT FILING DATE: 2003-03-25  
 15 <150> PRIOR APPLICATION NUMBER: US 09/407,806  
 16 <151> PRIOR FILING DATE: 1999-09-28  
 18 <150> PRIOR APPLICATION NUMBER: US 08/613,220  
 19 <151> PRIOR FILING DATE: 1996-03-08  
 21 <160> NUMBER OF SEQ ID NOS: 4  
 23 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 25 <210> SEQ ID NO: 1  
 26 <211> LENGTH: 52  
 27 <212> TYPE: DNA  
 28 <213> ORGANISM: Artificial Sequence  
 30 <220> FEATURE:  
 31 <223> OTHER INFORMATION: synthetically generated oligonucleotide  
 33 <400> SEQUENCE: 1 52  
 34 ccgagaattc attaaagagg agaaattaac tatgagagcg ctctgtctttc ac  
 36 <210> SEQ ID NO: 2  
 37 <211> LENGTH: 31  
 38 <212> TYPE: DNA  
 39 <213> ORGANISM: Artificial Sequence  
 41 <220> FEATURE:  
 42 <223> OTHER INFORMATION: synthetically generated oligonucleotide  
 44 <400> SEQUENCE: 2 31  
 45 cggaagatct aggttcccca ttttcacccc t  
 47 <210> SEQ ID NO: 3  
 48 <211> LENGTH: 1095  
 49 <212> TYPE: DNA  
 50 <213> ORGANISM: Thermococcus alcaliphilus  
 52 <400> SEQUENCE: 3  
 53 ttgagagcgc tcgtcttttca cggcaacctc cagtatgccg aaatcccaaa gagcgaaatc 60  
 54 ccaaaggtca tagagaaggc atacatccca gtcacgcaga cactgattaa agaagaaatt 120  
 55 cctttttgggc tcaacataac gggctatacc tttaaagtcc tcccgaagga tattatagac 180  
 56 ctctgttaaag ggggcatcgc gactgacctg atagagataa tcggaacgag ctacacgcac 240  
 57 gcaatactcc ccctcctgcc gcttagcaga gtagaagcac aagttcagag agatagggaa 300  
 58 gttaaggaag agctcttcga ggttttctcca aagggattct ggctgccaga gctcgcctat 360  
 59 gaccgcgataa tccctgccat actgaaggac aacgggttat agtatctatt cgccgacggg 420  
 60 gaggcgatgc tttttctcagc tcattctcaac tcggcgataa agccaattaa accgctctat 480  
 61 ccacacctta taaaggccca aagggaagcg cgcttttaggt acatcagcta tctccttggt 540

ENTERED

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```

62 ctcagggagc ttaggaaggc gataaagctc gtttttgaag gtaaggtaac gctaaaggca      600
63 gtcaaagaca tcgaagccgt acccgtttgg gtggccgtga acacggctgt aatgctcggc      660
64 atcggaaggc ttcctcttat gaatcctaag aaagtggcga gctggataga ggacaaggac      720
65 aacattcttc tatacggcac cgatatagag ttcattggct atagggacat tgcaggctac      780
66 agaatgagtg ttgagggatt attagagggt atagacgagc tcaactcgga actgtgcctt      840
67 ccctcagagc tgaagcacag tggaagggag ctctacttac ggacttcgag ttgggcacca      900
68 gataagagct tgaggatatg gagagaggac gaagggaacg caagacttaa tatgctgtcc      960
69 tacaatatga ggggcgaact cgccttttta gccgagaaca gcgatgcaag gggatgggag     1020
70 cccctccctg agaggaggct ggatgccttc cgggcgatat ataacgattg gaggggtgaa     1080
71 aatggggaac cttag                                     1095
73 <210> SEQ ID NO: 4
74 <211> LENGTH: 364
75 <212> TYPE: PRT
76 <213> ORGANISM: Thermococcus alcaliphilus
78 <400> SEQUENCE: 4
79 Leu Arg Ala Leu Val Phe His Gly Asn Leu Gln Tyr Ala Glu Ile Pro
80 1 5 10 15
81 Lys Ser Glu Ile Pro Lys Val Ile Glu Lys Ala Tyr Ile Pro Val Ile
82 20 25 30
83 Glu Thr Leu Ile Lys Glu Glu Ile Pro Phe Gly Leu Asn Ile Thr Gly
84 35 40 45
85 Tyr Thr Leu Lys Phe Leu Pro Lys Asp Ile Ile Asp Leu Val Lys Gly
86 50 55 60
87 Gly Ile Ala Ser Asp Leu Ile Glu Ile Ile Gly Thr Ser Tyr Thr His
88 65 70 75 80
89 Ala Ile Leu Pro Leu Leu Pro Leu Ser Arg Val Glu Ala Gln Val Gln
90 85 90 95
91 Arg Asp Arg Glu Val Lys Glu Glu Leu Phe Glu Val Ser Pro Lys Gly
92 100 105 110
93 Phe Trp Leu Pro Glu Leu Ala Tyr Asp Pro Ile Ile Pro Ala Ile Leu
94 115 120 125
95 Lys Asp Asn Gly Tyr Glu Tyr Leu Phe Ala Asp Gly Glu Ala Met Leu
96 130 135 140
97 Phe Ser Ala His Leu Asn Ser Ala Ile Lys Pro Ile Lys Pro Leu Tyr
98 145 150 155 160
99 Pro His Leu Ile Lys Ala Gln Arg Glu Lys Arg Phe Arg Tyr Ile Ser
100 165 170 175
101 Tyr Leu Leu Gly Leu Arg Glu Leu Arg Lys Ala Ile Lys Leu Val Phe
102 180 185 190
103 Glu Gly Lys Val Thr Leu Lys Ala Val Lys Asp Ile Glu Ala Val Pro
104 195 200 205
105 Val Trp Val Ala Val Asn Thr Ala Val Met Leu Gly Ile Gly Arg Leu
106 210 215 220
107 Pro Leu Met Asn Pro Lys Lys Val Ala Ser Trp Ile Glu Asp Lys Asp
108 225 230 235 240
109 Asn Ile Leu Leu Tyr Gly Thr Asp Ile Glu Phe Ile Gly Tyr Arg Asp
110 245 250 255
111 Ile Ala Gly Tyr Arg Met Ser Val Glu Gly Leu Leu Glu Val Ile Asp
112 260 265 270

```

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```

113 Glu Leu Asn Ser Glu Leu Cys Leu Pro Ser Glu Leu Lys His Ser Gly
114          275                      280                      285
115 Arg Glu Leu Tyr Leu Arg Thr Ser Ser Trp Ala Pro Asp Lys Ser Leu
116          290                      295                      300
117 Arg Ile Trp Arg Glu Asp Glu Gly Asn Ala Arg Leu Asn Met Leu Ser
118 305          310                      315                      320
119 Tyr Asn Met Arg Gly Glu Leu Ala Phe Leu Ala Glu Asn Ser Asp Ala
120          325                      330                      335
121 Arg Gly Trp Glu Pro Leu Pro Glu Arg Arg Leu Asp Ala Phe Arg Ala
122          340                      345                      350
123 Ile Tyr Asn Asp Trp Arg Gly Glu Asn Gly Glu Pro
124          355                      360

```

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/619,032A

DATE: 04/02/2003

TIME: 12:07:45

Input Set : A:\09010-004005.txt

Output Set: N:\CRF4\04022003\I619032A.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application Number  
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date